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Supporting Information for:

Enhancing the compatibility of BioCaRGOS silica sol-gel technology with ctDNA extraction and Droplet digital PCR (ddPCR) analysis

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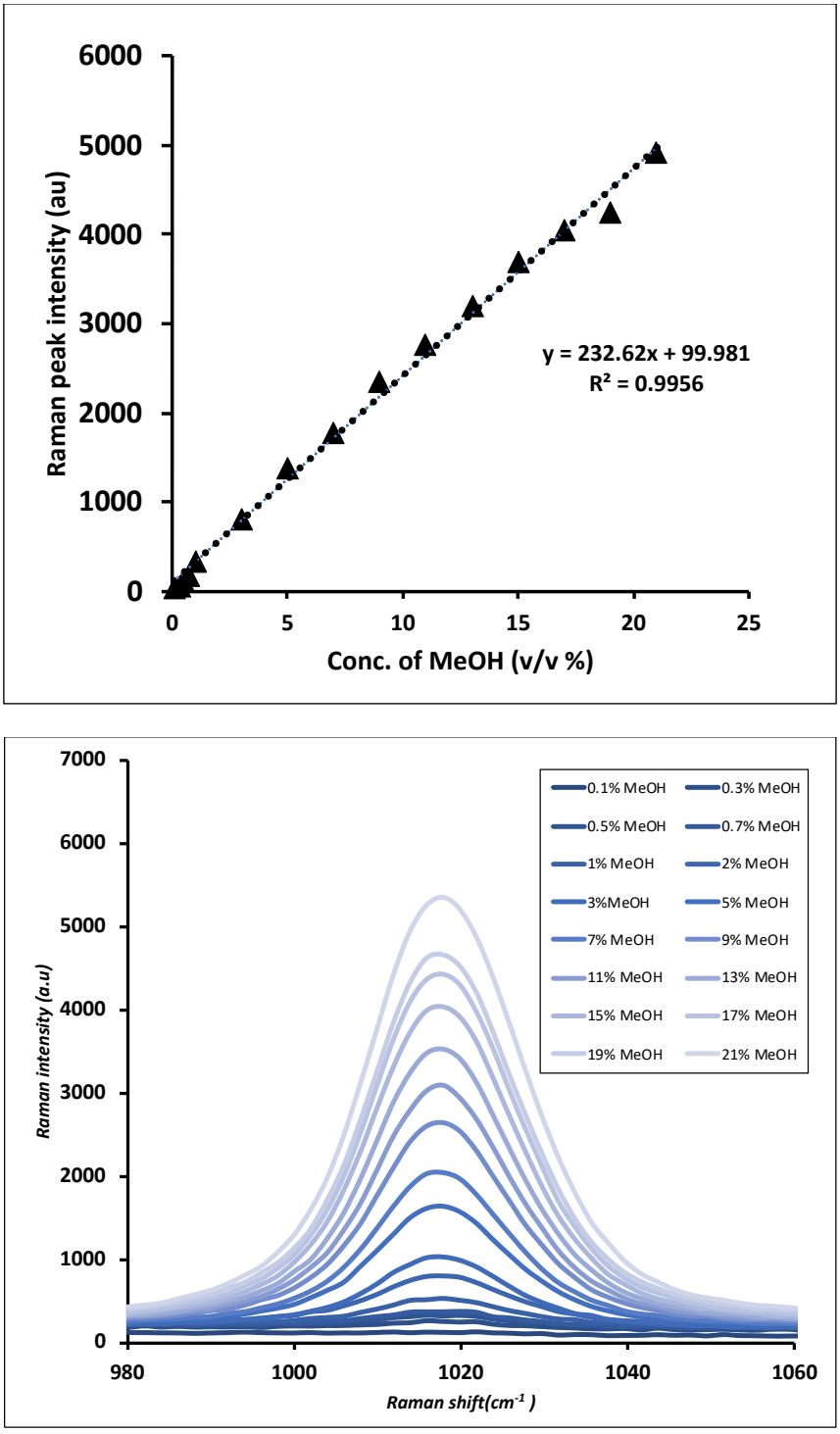

Figure 1: Calibration curve of Raman peak intensity vs aqueous methanol concentration (v/v %) (top) based on Raman spectra (bottom) at methanol concentrations from 0.1% to 21%.

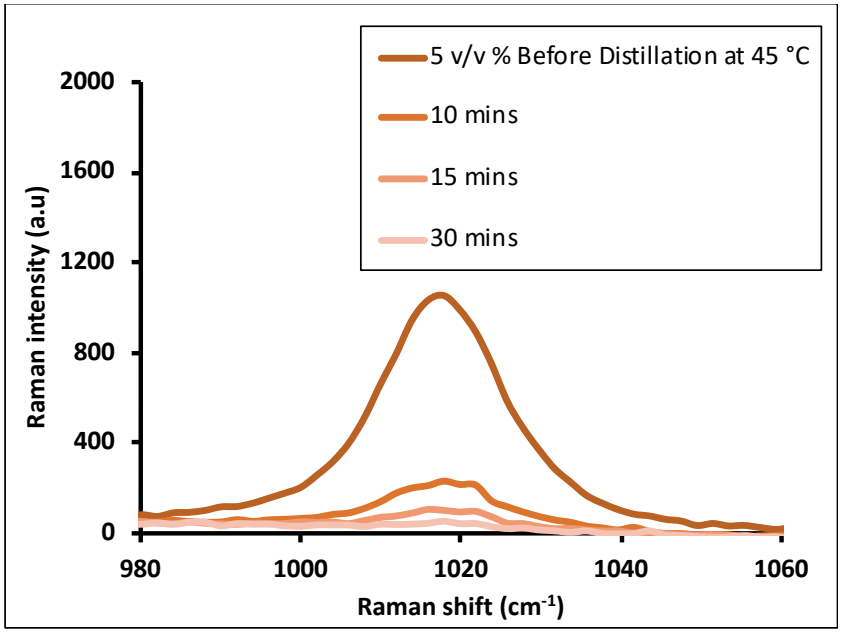

Figure 2: Raman spectra of 5 (v/v)% TMOS before distillation demonstrating concentration of methanol before and after distillation by rotary evaporation at 25 mbar and 45 °C for 10, 15 and 30 minutes.

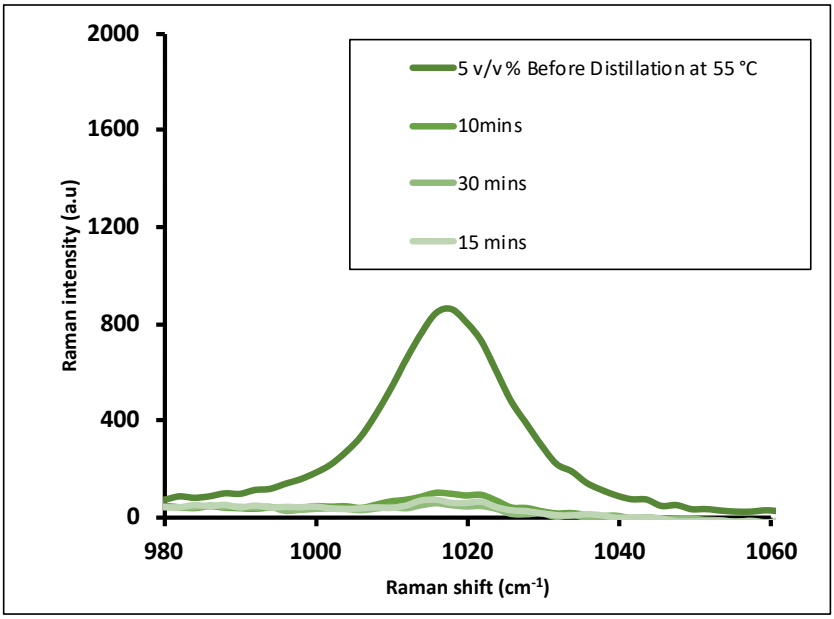

Figure 3: Raman spectra of 5 (v/v)% TMOS before distillation demonstrating concentration of methanol before and after distillation by rotary evaporation at 25 mbar and 55 °C for 10, 15 and 30 minutes.

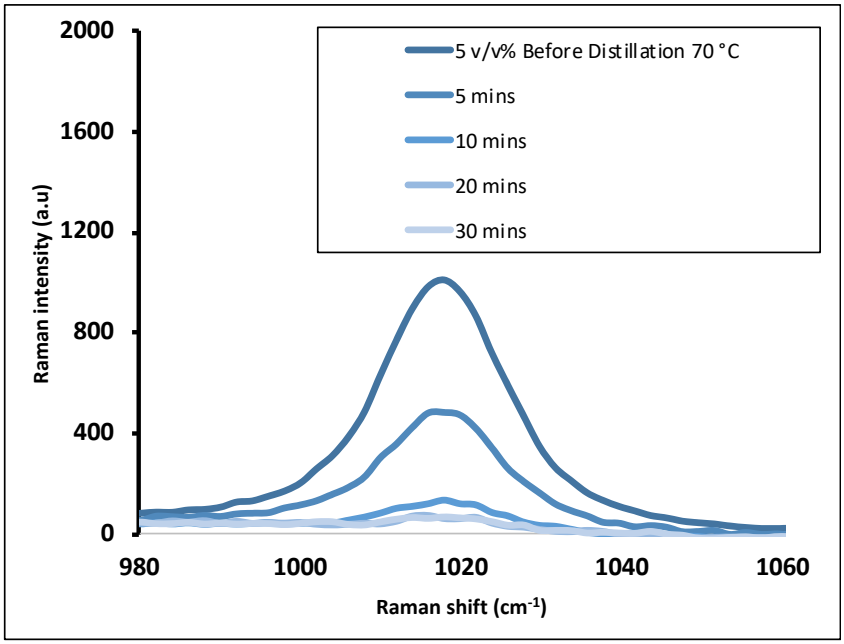

Figure 4: Raman spectra of 5 (v/v)% TMOS before distillation demonstrating concentration of methanol before and after distillation by rotary evaporation at 25 mbar and 70 °C after 10, 15 and 30 minutes.

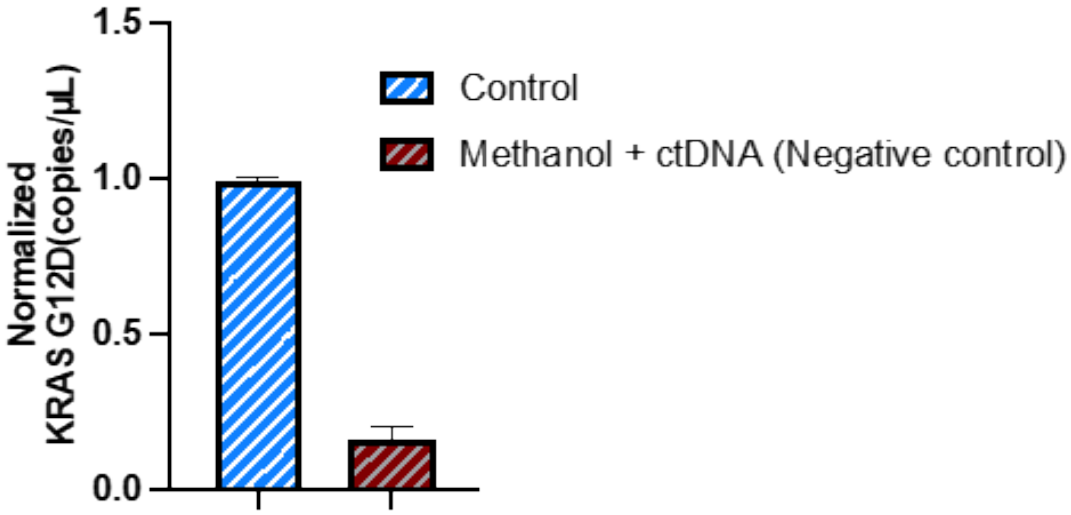

Figure 5: Addition of 98% MeOH to control samples [10 mM Tris-HCl (pH 7.5), 1 mM EDTA, 0.15 M NaCl] to see the negative effect on KRAS ctDNA samples.

Table 1: ddPCR sample preparation

Component	Volume (µL) per 10-µL reaction	Volume (µL) per 20-µL reaction (Corrected)
2X ddPCR Supermix for Probe (no dUTP)	10	11
20X Target (FAM) and wild-type HEX primer probe	1	1.1

AVE Buffer	4.5	4.95
KRAS mutation circulating tumor DNA (Extraction)	4	4.4
Total vol.	19.5	21.45

*Each 20μL reaction consists of 10 μL supermix, 1 μL of Target FAM and HEX primer probe, 045 μL AVE buffer and 4 μL of KRAS circulating tumor DNA (extracted).

Table 2: Thermal cycler program

Step Type	**Time (min)**	**Temperature (℃)**
Hold	10	95
Hold	30	94
Hold	1	55
Hold	60	55
Hold	10	98
Hold	9	12